

**Mary Katherine Zanin, PhD**  
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The Citadel  
Department of Biology  
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## Education

**Ph. D.**, Medical University of South Carolina, 171 Ashley Avenue, Charleston SC, 29425,  
Laboratory of Dr. Stanley Hoffman, Department of Rheumatology and Immunology  
**Major Interests**- Cellular Biology and Developmental Biology  
**Minor Interests** - Protein Biochemistry and Molecular Biology  
**Doctoral Research Emphasis** - Role of Extracellular Matrix Proteoglycans in the Formation of  
the Endocardial Cushion Tissue in the Developing Chick Heart  
GPA - 3.93/4.0  
**B.S.** in Biology (magna cum laude), University of South Carolina, Honors College, Columbia, SC; 1990  
GPA - 3.86/4.0

## Appointments

**2020-2021:** Interim Head, Biology Department, The Citadel, Charleston, South Carolina

**2011 – Present:** Associate Professor of Cell and Developmental Biology, The Citadel,  
Charleston, South Carolina

**2004-2010:** Assistant Professor of Cell and Developmental Biology, The Citadel, Charleston,  
South Carolina

**1993 – 2004:** Adjunct Instructor of Biology, College of Charleston,  
Charleston, South Carolina

**2000-2003 (Summer):** Faculty of The Governor's School of South Carolina at The College of  
Charleston, 6 Green Way, Charleston, SC 29424

**1990 – 1993:** Biochemistry Tutor, Medical University of South Carolina, School of Dentistry,  
Charleston, South Carolina

**1989:** Summer Research Assistant, Dr. Anthony Strelkauskus, Medical University of  
South Carolina, Department of Immunology, Charleston, South Carolina

**1988:** Summer Undergraduate Research Fellow, Dr. Jerome Ondo, Medical University  
of South Carolina, Department of Physiology and Neuroscience, Charleston, SC

## Honors and Awards

Citadel School of Science and Math Early Career Faculty Award, 2018  
Citadel Faculty Award for Excellence in Service, 2018  
Citadel Medbery Award for Dedication to Teaching, 2009  
Who's Who Among America's Teachers, 2002, 2004, and 2005  
Outstanding Adjunct Teaching Award, College of Charleston, 1999  
Medical University Women's Club Scholarship Award, 1993  
Carolina Scholar, University of South Carolina, 1986 -1990  
Phi Beta Kappa, University of South Carolina, 1989  
Mortar Board, University of South Carolina, 1989  
Carolina Cares Service Organization, Secretary/Treasurer, 1988  
Valedictorian, Bishop England High School, 1986  
Governor's Scholar, College of Charleston, 1985

# Teaching overview

## A- Courses Taught

### Undergraduate Courses Taught at The Citadel:

- Biology 101: An introduction to cell and molecular biology for non-majors (7 semesters/sections, last in Fall 2020)
- Biology 102: An introduction to cell and molecular biology for non-majors (3 semesters/sections, last in Spring 2010)
- Biology 111: Laboratory to Biology 101 (4 semesters/sections, last in Spring 2016)
- Biology 112: Laboratory to Biology 102 (2 semester/section, last in 2016)
- Biology 141: Laboratory to Biology 140 (2 semesters/sections, last in Spring 2018)
- Biology 205 and later BIOL 210/211: Cell Biology with Laboratory, course developer and director (17 lecture sections/34 lab sections; last in Spring 2021)
- Biology 320/321/322/323: Undergraduate Research Internship (16 students/sections, last in Spring 2020; details below, under Research Mentoring)
- Biology 401: Developmental Biology Course with Laboratory, course developer and director (7 semesters/sections, last in Fall 2017)
- Biology 411: Senior Seminar (Fall 2018)
- Biology 427: Immunology, course developer and director (6 semesters/sections, last in Fall 2021)
- Online Immunology (BIOL 427W), course developer and director (3 summers, last in 2020)
- Literature Seminar in Biology, BIOL 429, 1 semester, Spring 2020
- Natural Strand Science: An Ounce of Prevention (2 semesters, Fall 2020 and 2021)

### Graduate Courses Taught at The Citadel:

- Biology 531/532: Graduate Course in Developmental Biology, course developer and director (4 semesters/sections, last in Fall 2018)
- Biology 610: Graduate Course in Immunology, course developer and director (1 semesters/sections, Spring 2006)
- Online Immunology (BIOL 610), course developer and director (3 summers, last in 2020)
- Biology 611: Graduate Research Internship (5 students/semesters; details below, last in Spring 2021)
- Biology 612: Graduate Course in Cell Biology, course developer and director (5 semesters/sections, last in Fall 2019)

### Courses Taught at The College of Charleston:

- Biology 322: Comparative Vertebrate Embryology, course developer and director (4 semesters/sections)
- Biology 322 Lab to accompany lecture course (4 semesters/sections)
- Biology 313L: Cell Biology 313 laboratory course (2 semesters/sections)
- Biology 101: An introduction to cell and molecular biology for non-majors (15 semesters/sections)
- Biology 111: An introduction to cell and molecular biology for biology majors (6 semesters/sections)
- Biology 151: An introduction to cell and molecular biology for honors students (1 semester)
- Biology 112: An introduction to evolution, ecology, physiology, and anatomy for biology majors (summer 1998 – team taught with Jean Everett)

### Courses Taught for The Governor's School of South Carolina:

- 1) Subject Concentration Course in Animal Development for The Governor's School of South Carolina, course developer and director

## B- Research Mentoring and Independent Study Details

### Graduate Research Mentoring:

- 2) BIOL 611 Graduate Research, Chase Salisbury, “ “ (Summer 2021)
- 3) Research Volunteer, Chase Salisbury, “Epigenetics of Histone H3” (Spring 2021)
- 4) BIOL611-81, Charleston Marger, Improving techniques to study Histone H3 in the mitochondria of various species. (Fall 2014)

- 5) BIOL611-81, Steve Tolson, Discovery of Histone H3 in the mitochondria of *Drosophila melanogaster*. (Spring 2011)
- 6) BIOL611-81, Jon Michael Donohue, Purification of Mitochondrial Histone H3 by Gel Filtration Chromatography. (Spring 2008)
- 7) BIOL611-82, Jon Michael Donohue, Identification of Mitochondrial Histone H3 by Gel Electrophoresis and Western Blot Analysis. (Fall 2007)

**Undergraduate Research Mentoring:**

- 8) Spring 2020, Jonathan Johnson, "Histone H3 and J Proteins"
- 9) Fall 2019, Michael Curtis, Exploring chaperones of H3"
- 10) Fall 2019, Jonathan Johnson, "Drugs, stress, and histone H3"
- 11) Spring 2019, JP Kinson, "Using ion exchange and affinity chromatography to purify Histone H3"
- 12) Spring 2019 John DeStefano, "Stress Studies with Mitochondrial H3"
- 13) Fall 2018, BIOL 320, JP Kinson, "Using ion exchange and affinity chromatography to purify Histone H3"
- 14) Fall 2018, BIOL 321, John DeStefano, "Stress Studies with Mitochondrial H3"
- 15) Spring 2018, BIOL320, Dillon Graham, "Using PCR to verify the source of mitochondrial Histone H3"
- 16) Summer/Fall 2017 (BIOL 320) and Spring 2018 Research assistant, John DeStefano, "Exploring relationship of cellular stress to Histone H3 transport to mitochondria"
- 17) Fall 2016 Research Assistant, Dillon Graham, "Verifying that Appearance of Histone H3 in Mitochondria is not an artifact using DNase Treatment and PCR"
- 18) BIOL 320, Valian Brown: Literary Review of Sickle Cell Anemia (Spring 2014)
- 19) BIOL320, Joaquin Marquez: Evidence that Core Histone H3 is targeted to the mitochondria and related to apoptosis in *Drosophila Melanogaster* (Fall 2013 and Spring 2014)
- 20) BIOL320, Blake Holt: Evidence that Core Histone H3 is targeted to the mitochondria and related to apoptosis in *Bos Primigenius* (Fall 2013)
- 21) HONRS400, Sarah Katchen: Improving the Purity of Mitochondrial Preparations
- 22) BIOL320-02, Jane Ma, Exploring Histone H3 in mitochondria of mammalian cells (Fall 2012)
- 23) BIOL320-04, Jason Carver, Determine the purpose of Histone H3 in the mitochondria of *Drosophila melanogaster*. (Fall 2011)
- 24) BIOL320-04, David Spooner, Discovery of Histone H3 in the mitochondria of *Drosophila melanogaster*. (Spring 2011)
- 25) BIOL320-04, Phillip Davis, Confirmation of the Presence of Histone H3 in the Mitochondria of *Brasica oleracea* (Spring 2009)
- 26) BIOL320-04, William Madsen, Confirmation of the Presence of Histone H3 in the Mitochondria of *Brasica oleracea* (Spring 2009)
- 27) Summer and Fall Research Assistant 2008, Ian Prudhomme, Improving mitochondrial isolation techniques
- 28) BIOL320-08, Bryan Andrew Everitt, Characterization of Mitochondrial Histones by Gel Electrophoresis and Western Blot Analysis (Fall 2006)
- 29) BIOL320-08, Jonathan Robert Montes, Isolation of Mitochondrial Histone H3 by Affinity Chromatography (Fall 2006)

**Graduate Independent Study:**

- 30) BIOL612 Independent study in Cell Biology for a graduate student, Paula McCarthy, who wanted this course, but was unable to wait for the offering under the course rotation schedule (Spring 2016)
- 31) BIOL612. Independent study in Cell Biology for a graduate student, Brittany Hiott Ratliff, who wanted this course, but was unable to wait for the offering under the course rotation schedule (Spring 2015)
- 32) BIOL612. Independent study in Cell Biology for a graduate student, Jody R. Rhoderick, who wanted this course, but was unable to wait for the offering under the course rotation schedule (Spring 2013)
- 33) BIOL 610-81, Independent Study Immunology course for a graduate student, Joseph Abro, who wanted this course, but was unable to wait for the offering under the course rotation schedule (Fall 2008)

**Undergraduate Independent Study:**

- 34) BIOL 330-01, Taught for Nicole Rothell's Teaching Specialization (Spring 2017)
- 35) BIOL 320, Valian Brown, senior with need for cellular/molecular elective did literature review of sickle cell anemia (Spring 2014)
- 36) HONR 400, Sarah Katchen Honors thesis mentor together with Dr. Lisa Zuraw (Spring 2013)
- 37) BIOL101-01, Taught for one student, Sean Clayton Kaplan, who was called for active duty during the Spring 2008 semester and needed a compressed introductory biology course to

earn the required credits to receive class ring next year when he returns to The Citadel.  
(Spring 2008)

#### **Instructor of Record for Students in Off-Campus Research/Internship Experiences-**

correspond regularly with mentors to monitor student learning and report grades to the registrar

- Fall 2019, John DeStefano, "Autophagy drugs and doxorubicin" with Dr. Joseph Delaney at MUSC
- Spring 2018, (HONR 400) Madysen Riegel, Research with Dr. Das at MUSC
- Spring 2017, (BIOL 320) Brandon Hall, Pharmacy Intern, Dr. Peni Floyd, Walmart
- Spring 2017, (BIOL 320) Julian Teodor, Research with Dr. Liz Yeh, MUSC
- Spring 2017, (BIOL 320) Paul Culver, Research with Dr. Art Riegel at MUSC
- Fall 2016, (BIOL 320) Ivan Dingle, Research with Dr. Liz Yeh, MUSC
- Fall 2016, (BIOL 320) Julian Teodor, Research with Dr. Liz Yeh, MUSC

#### **Mentor for South Carolina INBRE's PACD (Postdoctoral Academic Career Development) Program:**

- Melissa O'Connor, Spring 2013

**Mentor for MUSC/Citadel Teaching Internship Program:** This program is a partnership between MUSC and The Citadel coordinated by Eric James and Kristy Johnson. Graduate students from MUSC learn the fundamentals of running a teaching lab by assisting me with the cell biology lab course

- Bradley Krisanits, Spring 2019
- Emily Durham, Spring 2017
- Mauhamad Baarine, Spring 2016
- LaShardai Brown, Fall 2015
- Caroline Wallace, Spring 2015
- Natalie Straight McGuier, Spring 2014
- Brenna Doheny, Spring 2013
- Kristin Midget, Fall 2012
- Sarah Brice, Spring 2012
- Alexis Hoferlin Fall 2010
- Marisa Meyers Spring 2009
- Bailey Glen Fall 2007
- Jennifer Yordy Fall 2006
- Matt Rhett Fall 2005

## **Scholarly and Professional Activities**

### **Publications**

1. Ghanat, S.T., **Zanin, M.K.**, Garner, D., Ragan, D., Plumblee, J.M., Bornstein, D.B., Lewis, J.H. (2019) "[Comparison of Mentors' and Mentees' Perceptions of Mentees' Research Skill Gains at The Citadel](#)", Proceedings of American Society of Engineering Education 126th Annual Conference and Exposition, Tampa, Florida, June 16-19, 2019.
2. **Zanin, M.K.B.** (2015) Creating & Teaching with Simple Animation: Making Biology Instruction Come Alive. American Biology Teacher. 77(6). <https://bioone.org/journals/the-american-biology-teacher/volume-77/issue-6/abt.2015.77.6.463/Creating--Teaching-with-Simple-Animation--Making-Biology-Instruction/10.1525/abt.2015.77.6.463.full> **(Peer-Reviewed)**
3. **Zanin, M.K.B.**, Everitt, B., and Donohue, J. (2010) Evidence that Core Histone H3 is targeted to the Mitochondria in Brassica oleracea. Cell Biology International. 34(10), 997–1003. <https://onlinelibrary.wiley.com/doi/full/10.1042/CBI20090281> **(Peer-Reviewed)**
4. **Zanin, M.K.B.** and Duvall, M.R. (2009) Back-Burning to Cure HIV: Temporary Depletion of All CD4+ Cells and Elimination of the Extracellular Reservoir with HIV Immunotoxin Therapy. Medical Hypotheses Volume 72, Issue 5, Pages 592-595. <http://linkinghub.elsevier.com/retrieve/pii/S0306987708006403> **(Editorial Board-Reviewed)**
5. Ellison, B.S., **Zanin, M.K.B.**, Boackle, R.J. (2007). Complement susceptibility in glutamine deprived breast cancer cells. Cell Division, 2(1):20. <https://link.springer.com/article/10.1186/1747-1028-2-20> **(Peer-Reviewed)**

6. **Zanin, M. K. B.**, Ernst, H., Pickens, T., and Hoffman, S. (1999). Distinct Spatial and Temporal Distributions of Aggrecan and Versican in the Embryonic Chick Heart. *The Anatomical Record*. 256, 366-380. <http://www.ncbi.nlm.nih.gov/pubmed/10589023> (Peer-Reviewed)
7. Balsamo, J., Leung, T.C., Ernst, H., **Zanin, M. K. B.**, Hoffman, S., and Lilien, J. (1996). Regulated binding of a PTP1B-like phosphatase to N-cadherin: control of cadherin-mediated adhesion by dephosphorylation of B-catenin. *J. Cell Biol.* 134, 801-813. <http://www.ncbi.nlm.nih.gov/pubmed/8707857> (Peer-Reviewed)
8. Ernst, H., **Zanin, M. K. B.**, Everman, D., and Hoffman, S. (1995). Receptor-mediated adhesive and anti-adhesive functions of chondroitin sulfate proteoglycan preparations from embryonic chicken brain. *J. Cell Science.* 108, 3807-3816. <http://www.ncbi.nlm.nih.gov/pubmed/8719887> (Peer-Reviewed)
9. Balsamo, J., Ernst, H., **Zanin, M. K. B.**, Hoffman, S., and Lilien, J. (1995). The interaction of the retinal cell surface N-acetylgalactosaminyl-phosphotransferase with an endogenous proteoglycan ligand results in inhibition of cadherin-mediated adhesion. *J. Cell Biol.* 129, 1391-1401. <http://www.ncbi.nlm.nih.gov/pubmed/7775582> (Peer-Reviewed)
10. Hoffman, S., Dutton, S. L., Ernst, H., **Boackle, M.K.**, Everman, D. G., and Loike, J. D. (1994). Functional Characterization of Anti-adhesion Molecules. *Perspectives on Developmental Neurobiology.* 2, No. 1, 101-110. <http://www.ncbi.nlm.nih.gov/pubmed/7530136> (Peer-Reviewed)

## **Peer-Reviewed Presentations at Conferences and Meetings**

### **A- Posters/Oral Presentations/symposia**

#### **1- National/International organizations**

- American Society for Cell Biology Meeting, 2013. "Evolutional Conservation of Histone H3 Transport to Mitochondria from Plants to Mammals" **M.K.B. Zanin**, J. Ma, and S. Katchen.
- American Society of Cell Biology (ASCB) held in San Francisco, CA, 2012: "Effectiveness of Supplementing Traditional Lecture with Animation"
- American Society for Cell Biology Meeting, 2009. "Histone H3 Identified in Mitochondria: Key to Evolution and Nuclear-Mitochondrial Coordination?" **M.K.B. Zanin**, J. M. Donohue, and B. Everitt.
- American Society for Cell Biology Meeting, 1994. Poster Presentation "Receptor-Mediated Adhesive and Anti-Adhesive Functions of Two Distinct Proteoglycans from Embryonic Chicken Brain", H. Ernst, **M.K.B. Zanin**, D. Everman, and S. Hoffman.
- American Society for Cell Biology Meeting, 1993. Poster Presentation "Characterization of Chondroitin Sulfate Proteoglycans from Embryonic Chicken Brain", H. Ernst, **M.K. Boackle**, D. G. Everman, S. L. Dutton and S. Hoffman.
- American Society for Cell Biology Meeting, 1992. Poster Presentation "The Function of Proteoglycans as Anti-Adhesion Molecules Involves an Interaction with Cell-Surface Receptors", S. Hoffman, H. Ernst, **M.K. Boackle**, and S. Dutton.

#### **2- State/Regional organizations**

- Annual Meeting of ASB (Association of Southeastern Biologists) 2022. Poster Presentation "Harmonizing Undergraduate Biology Education with Best Practices at The Citadel" by Kathy Zanin, John Weinstein, Dena Garner, Andrea Gramling and Darin Zimmerman
- SCCITL 2019 – Statewide College Educators Meeting. "Underutilized LMS Features: Discussion Boards and Tests with Feedback" Oral Presentation.
- Annual Meeting of ASB (Association of Southeastern Biologists) 2019. Poster Presentation "Different human cell lines exhibit different extranuclear localization of histone H3.1."
- Annual Meeting of ASB (Association of Southeastern Biologists) 2018. Poster Presentation "Post-Translational Modifications of Histone H3 in Mitochondria of Human Jurkat Cells and Related Stress Relief Studies."
- Annual Meeting of ASB (Association of Southeastern Biologists) 2017. Poster Presentation "Evidence Supports Claims that Histone H3 is Present in Mitochondria of Diverse Species."

- SURF, Wofford Research Conference, Spring 2017. "Oxidative Stress Levels in Jurkat Cells Treated with Tocopherol Succinate" John DeStefano and Dr. Mary K. B. **Zanin**
- 34th Annual South Regional Developmental Biology Meeting, 1992. Poster Presentation "Anti - Adhesion Molecules", Ernst, Heidemarie, Dutton, Sandra, **Boackle, Mary K.**, & Hoffman, Stanley.

### 3- Local organizations

- CEITL & DE "Teaching with Technology" Technical Aspects of Using the iClicker Response System in the Classroom" February 11, 2020.
- BioCid Club Guest Speaker "Research Opportunities for Undergraduates at The Citadel, and the Path to becoming a Professor" November 10, 2020
- CEITL & DE "Experience Active Learning" Presentation; November 12, 2019
- CEITL & DE "Teaching with Technology: Synchronous and Asynchronous Communication with Students" Workshop speaker, March 6, 2018
- Citadel SURE Research Conference, Spring 2018. "Immunofluorescent Microscopy of Human T Cell Lymphoma Suggests Mitochondrial Histone H3 Colocalization is Not Contingent on Oxidative Stress." John W. DeStefano, David M. Donnell, Claudia B. Rocha, Mary Katherine B. Zanin
- Citadel Student Research Conference, Spring 2017. "Polymerase Chain Reaction Suggests Effectiveness of DNase Treatment for Study of Histone H3 in Mitochondria" Dillon Graham and Dr. **Kathy Zanin**.
- Citadel Undergraduate Research Conference, Spring 2015. Charlye Marger and **Kathy Zanin** "DNase Treatment Prevents Nuclear contamination of Percoll-Purified Mitochondria" - 1st prize in the graduate student category.
- Student Research Day, Poster Presentation, The Citadel, 2014. "The Hunt for Histone H3: Evidence that Core Histone H3 is targeted to the mitochondria and related to apoptosis in Bos Primigenius and Drosophila Melanogaster" Charles B. Holt, Joaquin A. Marquez and **Kathy Zanin**
- Student Research Day, Poster Presentation, The Citadel, 2013. "Role of Mitochondrial Histone H3 in Apoptosis" Jane Ma, Sarah Katchen, and **Kathy Zanin**
- CASTLE, oral presentation entitled "A Novice Perspective on Building an Online Course in Blackboard Learn," March 5, 2012
- CAC, oral presentation, "Using Web Resources and Animations to Enhance Student Learning," February 28, 2008
- CASTLE, oral presentation entitled, "When to Use Animations to Enhance Student Learning, and How to Create Cartoons Yourself" on October 1, 2007.
- Charleston Connections Conference, oral presentation, "Instructing with Animated Cartoons - A Teaching Innovation" on May 24, 2007.
- Student Research Day, Poster Presentation, The Citadel, 2007. "The Presence of Histone H3 in Mitochondria of *Brasica oleracea*" Bryan Everitt and **Kathy Zanin**.
- Charleston County Library, oral presentation, "Into the Body;" one lecture of a six-part series entitled "Research Revolution." April 3, 2006. \* Honorarium \$100.
- CASTLE, oral presentation entitled, "WebCT Discussion Boards: Engaging Students in Learning Outside the Classroom" on February 13, 2006.
- Oral Qualifying Exam, Part II, January 5, 1994. "Study of the Spatio - Temporal Distribution and Function of Anti-Adhesive Chondroitin Sulfate Proteoglycans During Development", **M. K. Boackle**.
- Oral Qualifying Exam, Part I, February 18, 1993. "Cytotactin Binding (CTB) Proteoglycan Aggregate: An Anti-Adhesive Extracellular Matrix Complex", **M. K. Boackle**.
- Student Research Day, Oral Presentation, Medical University of South Carolina, 1993. "Characterization of Anti-Adhesive Proteoglycans", **Kathy Boackle**, Heidemarie Ernst, David Everman, and Stanley Hoffman.
- Student Research Day, Poster Presentation, Medical University of South Carolina, 1992. "Characterization of an Extracellular Matrix Proteoglycan", **Kathy Boackle**, Heidemarie Ernst, and Stanley Hoffman.

## **Grants**

### **Citadel Foundation (CF) research grants**

#### **- Pending**

- None at this time

#### **- Current**

- None at this time

#### **- Past**

- Citadel Foundation Research Grant, \$3,000, 2021-2022 to support Exploring the Role of a Particular Post-Translational Modification on Mitochondrial Histone H3, H3K9me3
- Citadel Foundation Research Grant, \$3,000, 2020-2021 to support Exploring the mechanism of intracellular transport of Histone H3 from nucleus to mitochondria
- Citadel Foundation Research Grant, \$3,000, 2019-2020 to support Investigating differences between extranuclear localization of Histone H3 in various cancer cell lines
- Citadel Foundation Research Grant, \$3,000, 2018-2019 to support Investigating Stress-Related Post-Translational Modifications of Histone H3 in Mitochondria of Various Species
- Citadel Foundation Research Grant, \$3,000, 2017-2018 to support Determining the Function of Mitochondrial Histone H3 Utilizing its Unique Modifications as Compared with Nuclear H3
- Citadel Foundation Research Grant, \$3,000, 2016-2017 to support Identifying the Unique Modifications of Mitochondrial Histone H3 as Compared with Nuclear H3
- Citadel Foundation Research Grant, \$3,000, 2015-2016 to support Supporting the Hypothesis that Core Histone H3 Movement to Mitochondria is not an Artifact but a Programmed Cellular Response
- Citadel Foundation Research Grant, \$2,250, 2014-2015 to support Exploring Apoptosis and Histone H3 in Mitochondria of Multiple Species. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2013-2014 to support Exploring the Functions of Histone H3 in Mitochondria of Multiple Species. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2012-2013 to support Exploring the Functions of Histone H3 in Mitochondria of Multiple Species. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2011-2012 to support the Continued Exploring of the Presence of Histone H3 in Mitochondria of Multiple Species. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2010-2011 to support Exploring the Presence of Histone H3 in Mitochondria of Multiple Species. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2009-2010 to support Confirmation of the Presence of Histone H3 in the Mitochondria of *Brasica oleracea*. Primary Investigator
- Citadel Foundation Research Grant, \$2,580, 2008-2009 to support Research in Exploring the Modifications of Histone H3 in the Mitochondria of *Brasica oleracea*. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2007-2008 to support Research in Dual Targeting of Histone H3 to the nucleus and to the Mitochondria in *Brasica oleracea*. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2006-2007 to support Research in Characterization of Histone H3-like protein from Mitochondria of *Brasica oleracea*. Primary Investigator
- Citadel Foundation Research Grant, \$3,000, 2005-2006 to support Research in Enhancing Complement-Mediated Damage of Breast Cancer Cells Using Bi-Specific Antibodies. Primary Investigator

## **Workshops and Professional Development Activities**

### **A - Participation in professional development activities**

- PULSE Southeast Regional SERP III Institute, May 24-27, 2021
- Citadel Core Curriculum Strand Course Workshop, June 5-6, 2019
- Center for Teaching Innovation Reading Series/Book Club, Fall 2017, Spring and Fall 2018, 2019
- National Meeting NAAHP, Washington DC, July 2018
- Regional Meeting SAAHP, Charleston SC, June 2017

- National Meeting NAAHP, Minneapolis MN, June 2016
- Citadel Campus Security Authority Training, August 19, 2014; August 10, 2015, December 8, 2016
- NCBI Workshop for Welcoming Diversity, May 2, 2014
- Webinar for Pre-Health Advisors. Topic: Advising the Veterinary Student. Host: AAVMC. Date and Time: April 14, 2014 3:00 PM
- Webinar for Pre-Health Advisors. Topic: Advising Students on Health Experiences Abroad. Host: CFHI. Date and Time: October 30, 2013 2:00 PM
- Webinar for Pre-Health Advisors. Topic: Changes to the 2014 AMCAS Application. Host: Jayme Bograd and Mandy McManamon. Date and Time: Thursday, February 7, 2013 3:00 pm
- National Meeting NAAHP, Baltimore, MD, June 19-24 2012
- NIH Training Seminar: Bio-Trac 21: Mitochondrial Biology and Pathology; May 24- 26 2011
- Palmetto Bug Spring 2010 Meeting for Blackboard Users; May 14, 2010, hosted at The Citadel.
- 2007 Charleston Connections Conference on Innovations in Higher Education held at The Citadel on May 24, 2007.
- Evolution lecture by Chris Beard during Darwin Week on February 16, 2006.
- 2005 Charleston Connections Conference on Innovations in Higher Education on May 13, 2005.
- Dr. Richard Paul's two-day workshop entitled, "Fundamentals of Critical Thinking and the Process of Assessment." Hosted by CASTLE and CAC here at The Citadel on January 6 and 7, 2005.
- Citadel ITS Workshop on the use of the Digital Presenter, December 12, 2004
- Active member of CASTLE, Citadel Academy for the Scholarship of Teaching, Learning and Evaluation. Biweekly meetings allowed me to get valuable support and helpful insight into improving teaching skills from other faculty members who participate in CASTLE.
- Active member of CAC, Communication Across the Curriculum, 2-3 meetings each semester designed to improve inter-department communication and academic exchange.
- Active member American Society of Cell Biology.

## Service

### Service to College

#### **A- Standing college-wide Committees**

- Faculty Senate 2021-present
- Chair of the Curriculum Committee (2008-09 and 2013-14)
- Active member of the Curriculum Committee (Fall 2005-Spring 2014)
- Active member of the Evaluation of Instruction Committee (Fall 2005-Fall 2007); required extensive research into the validity and effectiveness of online evaluations which the committee used to make decisions for our faculty council recommendations.

#### **B- Other service to the College**

- Interim Department Head AY 2021-2022
- Black History Month Committee 2021
- Probationary Reappointment Committee for Dr. Rebekah Burke, Construction Engineering Department, 3<sup>rd</sup> year review Spring 2021
- Online Taskforce Advisory Committee (CEITL & DE) 2017-2020
- Nursing Advisory Committee Member, 2017-present
- Coordinate Multimedia promotion of The Citadel Accelerated Entry Agreement with MUSC, as well as guide interested students, since the program launched Spring 2019.
- Pre-Health Advisor, 2011-present, advise all pre-health students as they prepare to apply to various programs
- Serve as new faculty mentor for Nursing Faculty member Robin Matutina, Fall 2018
- Moderator - Citadel Students of Excellence Service Learning & Community Engagement (SLCE) panel, Leadership Symposium, March 29, 2018. "Supporting Community Health and Wellness,"



- Serve as New Faculty Mentor for new Nursing Faculty member Ruth Henderson, Fall 2017-present
- Organize and moderate a student panel entitled "Supporting Community Health and Wellness" for SLCE for the Citadel's 2018 Leadership Symposium
- Delivered a presentation on Academic Advising on Tuesday, 16 August 2016 for the Provost's Faculty Development Workshop.
- Served on the Online Education Advisory Board (Spring 2012-present). Established school-wide policy for development and maintenance of effective online education courses.
- Sponsored Shrimp Boil Fundraising Activity for Heroism/Leadership Day (Fall 2011 and 2012)
- Assist in writing Noyce Grant Application for scholarships to recruit new teachers to the STEM Fields.
- Participant in STEM Initiative Committee (Led by Dr. Tony Johnson, Dean of the School of Education), Summer 2009

### **Service to School and/or Department**

#### **A- Departmental/School Standing Committees/Programs**

- Chair of the Pre-Health Committee. This committee reviews and recommends students for admittance to graduate programs in health-related professions. (August 2011-2021)
- Member of the Pre-Health Professions Committee. (May, 2006-August 2011)
- Member of Sabbaticals Committee (AY 2011-2012)

#### **B- Departmental Ad Hoc Committees or Task Forces**

- BIOL 105 Revision Committee Member Fall 2022
- Genetics Search Committee Member 2022-2023
- Prepared and posted a recommended curriculum for pre-medical Biology majors, summer 2018.
- Assist in the establishment of 3+4 Pathway for cadets to have accelerated entry to MUSC for medical or dental school; devised curriculum proposals and participated in required meetings with MUSC administration, Spring 2018.
- Departmental Web Page Update to Joomla and maintenance (Fall 2010-present), including creation of new faculty pages and curricular updates.
- Search Committee Chair, Fall 2005, for Vertebrate Zoologist hired by the Biology Department

#### **C- Other School or Departmental service**

- Search Committee Member, Dean Search for SSM, Darin T. Zimmerman, Fall 2017
- Chair Search Committee to hire New Nursing Department's Head Amy Joseph (Fall 2016)
- STEM Scholars – spearheaded addition of this program to the Provost's Initiative. Work with Deans Ron Welch and Lok Lew Yan Voon to establish parameters
- Nursing Advisory Committee (Fall 2015-present)
- LDRS 411: Fall 2014 and Fall 2015
- Online Education Advisory Board 2012-2013
- Assisted in the revision of non-majors course and labs 2011
- Biology Department Pre-knob guide on March 11, 2010, February 18, 2010, Organized Farewell Party For Dr. Alix Darden, held On December 10, 2008
- February 5, 2009, April 10, 2008; November 30, 2006; April 6, 2006; and April 14, 2005.
- CGPS student-teacher observation for Sally Seignious, on March 16, 2006 for recommendation to Dr. Trudy Morris, Director of Teaching Internships at The Citadel.
- On March 23, 2005 attended and passed The Citadel Driver Training course so that I can drive school vans.

### **Service to Students**

#### **A- Summary of student advising responsibilities**

- Provide academic advising to 7-15 biology majors per semester (Fall 2005-present)
- Provide Pre-Health advising to all Citadel Pre-Health students

#### **B- Other service to students**

- Promote the state-wide Bench to Bedside (B2B) Pre-Health Enrichment Program, providing Citadel students with the opportunity to participate in 3-4 virtual meetings per

semester by reserving a Poly-Com room and coordinating for MultiMedia support. Since these meeting overlap the dinner hour, I also provide a meal for the students who attend. (Fall 2016-present)

- Established a Pre-Health Mentorship Program for students in 2013. Since then I have paired over 33 students with health professionals.
- Oral Cancer Screening to help The Citadel become tobacco free. April 20, 2016. Over 120 cadets along with a number of faculty and staff were screened, many of whom were directed to early intervention before their lesions became life-threatening. As Advisor of the Pre-Health Society, I helped Matt Scalise to coordinate this event.
- A Tobacco Talk by Dr. Mike Cummings – special campus event to help The Citadel become tobacco free. April 14, 2016. As Advisor of the Pre-Health Society, I helped Matt Scalise to coordinate this event.
- Advisor to the Pre-Health Professions Club (Fall 2011-present)
- Advisor to the cadet organization, WISE, Women in Science and Engineering (Fall 2008-May 2011)
- Annual Cell Biology Field Trip to MUSC, to tour the Electron Microscopy Facility and the Pathology museum (Fall 2004-present)
- The Annual Senior Dinner for biology majors hosted at my house on April 22, 2005 and on April 27 2014.
- Letters of recommendation for undergraduate and graduate students seeking admission into various academic programs

### **Service to the Community or Public**

- Educate the public about COVID vaccines via social media platforms, 2021
- Volunteer For Jennifer Alberts to teach in the STEM outreach for Richland County Schools' ALERT program, to help middle school students nurture a love of science. I taught groups of middle school students on the dates below: October 25, 2018, November 1, 2018, and November 8, 2018.
- Pre-Health Society Community Service, Fall 2018. Facilitated club members to serve as volunteers for the Leukemia and Lymphoma Society's local Light the Night and Regatta events.
- Panel Presentation for MUSC's Student Programs and Diversity Office, February 22, 2018. The "PhD Pathways" panel informed PhD students about the teaching career pathway.
- Pre-Health Society Community Service, Fall 2017. Facilitated club members to serve as volunteers for the Komen Race for the Cure and for the Leukemia and Lymphoma Society's local Light the Night events.
- Cadets for a Cure – As Advisor for The Pre-Health Society, I facilitated efforts by Matt Scalise and the members of the club to raise money for Patient Support Services at Hollings Cancer Center. In 2014 we raised over \$1,000 and in 2015 we raised \$8,500. We also got cadet into volunteer positions in the Komen Race for the Cure.
- STEM Center Outreach Richland County ALERT – Delivered three Developmental Biology Presentations to groups of middle school students from Richland County District 2, Fall 2018. Delivered six Developmental Biology presentations to groups of middle school students from Richland County District 2, Fall 2014.
- Supervised Cadets for a Cure Campaign raising funds and awareness for MUSC Hollings Cancer Center Patient Services. 2014.
- Presentation to 5<sup>th</sup> grade class of Joseph P Rye – STEM Center Outreach Event, March 2014
- Presentations on four different dates in 2012 to Middle School students – STEM Center Outreach Event
- Leadership Day (Co-supervised with Dr. Claudia Rocha) Cadets in Shrimp Boil Fundraising to Benefit VA Patient Services in 2011 and again to Benefit Wounded Nature in 2012.
- Mentor for Academic Magnet High School Senior Thesis for Student Sam Jones (Spring 2012-present)
- Developmental Biology Presentation for middle school ALERT Program Spring 2011 and Spring 2012
- Science Night Booth Sponsor for James Simmons Elementary School, January 21, 2010.
- Girl Scout Mentoring through WISE, 2008-present

- Science Fair judge for West Ashley Middle School, March 5, 2007.
- Oral presentation for the Charleston County Library entitled, "Into the Body" as one lecture of a six-part series entitled "Research Revolution," April 3, 2006
- I served as a science fair judge for The Charleston Catholic School on February 2, 2005
- Research mentor for The Academic Magnet High School, Fall 2005. The student, Araba Appiagyei-Dankah won third place overall in the Academic Magnet High School Science Fair for her project on the effect of sugar substitutes on chick embryo development, and she entered the same project into the SCJAS (South Carolina Junior Academy of Science) Conference, where it won third place on March 10, 2006.

### **Service to the Discipline**

- Served as judge for Student oral and poster presentations at the 2022 ASB meeting.
- Served as judge for Student oral and poster presentations at the 2021 ASB meeting.
- Served as a session Moderator for oral presentation session at the 2021 ASB meeting.
- Served as judge for Student oral and poster presentations at the 2020 ASB meeting.
- Journal Article Review. 2019 manuscript # CBIN.20190087.R2 entitled "Demonstration of exogenous nuclear histone H3 binding to mitochondria and subsequent cytochrome c release in cauliflower" Third review for *Cell Biology International*.
- Journal Article Review. "Demonstration of exogenous nuclear histone H3 binding to mitochondria and subsequent cytochrome c release in cauliflower." Second review for *Cell Biology International*.
- Journal Article Review. "Binding of exogenous nuclear histone H3 to mitochondria and cytochrome c release by histone-enriched fractions in cauliflower." Initial review for *Cell Biology International*.
- Served as judge for Student oral and poster presentations at the 2017 ASB meeting.
- Journal Article Review. "From lab bench to school desk: a model to learn phagocytosis based on macrophage research material" for *American Biology Teacher* 2015
- Journal Article Review. "The Immune System Game." for *American Biology Teacher* 2014.
- Journal Article Review. "Histone H3 is absent from organelle nucleoids in BY-2 cultured tobacco cells" for *Cell Biology International* 2013.
- Textbook review. The Unity and Diversity of Life, 10<sup>th</sup> edition, by Cecie Starr and Ralf Taggart; Thomson, Brooks/Cole. Chapters reviewed: Chapter Two, "Chemical Foundations for Cells," Chapter Five, "A Closer Look at Cell Membranes," Chapter Forty-Three, "Principles of Reproduction and Development." Contact: Chris Ziemba [chris.ziemba@thomson.com], \*honorarium \$300. October, 2004.